UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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July 15, 2022

Ref: 8WD-CW

SENT VIA EMAIL
DIGITAL READ RECEIPT REQUESTED

Mr. L. David Glatt, Director
North Dakota Department of Environmental Quality
4201 Normandy Street
Bismarck, North Dakota 58503-1324

Subject: EPA's Action on North Dakota's Revised Chronic Aquatic Life Criterion for Mercury

Dear Mr. Glatt:

U.S. Environmental Protection Agency (EPA) has completed its review of North Dakota's revisions to its Standards of Quality for Waters of the State of North Dakota Administrative Code (NDAC) ch. 33.1-16-02.1. These revisions were presented to the Legislative Rules committee for review and adopted by the North Dakota Department of Environmental Quality (DEQ) on June 8, 2021. The submission letter included an Opinion of the Office of the Attorney General certifying that the rules were duly adopted pursuant to state law. Receipt of the revised standards on June 18, 2021, initiated EPA's review pursuant to Section 303(c) of the Clean Water Act (CWA). Although DEQ's new and revised rules took effect under state law on July 1, 2021, EPA's approval under CWA Section 303(c) is required before water quality standards (WQS) are effective for CWA purposes, including for implementation in the CWA Section 402 National Pollutant Discharge Elimination System (NPDES) permitting program (see 40 C.F.R. § 131.21(c)).

Clean Water Act Review Requirements

CWA Section 303(c)(2)(A) requires states and authorized Indian tribes[1] to submit new or revised WQS to EPA. EPA is required to review and approve, or disapprove, the submitted WQS. Pursuant to 40 C.F.R. § 131.21(c), new or revised state WQS submitted to EPA after May 30, 2000, are not effective for CWA purposes until approved by EPA. The Region's goal has been, and will continue to be, to work closely with states and authorized tribes throughout the WQS development process to ensure that statutory and regulatory requirements are clear.

[1] CWA section 518(e) specifically authorizes EPA to treat eligible Indian tribes in the same manner as states for purposes of CWA section 303. See also 40 C.F.R. § 131.8.

Today's Action

In a previous action letter,[2] EPA approved most of the revisions to the state WQS that EPA received on June 18, 2021. Today EPA is disapproving DEQ's revision of its chronic aquatic life criterion (ALC) for mercury at NDAC § 33.1-16-02.09. The Region worked closely with DEQ throughout the pre-rulemaking and rulemaking processes and conveyed concerns about the mercury criterion under consideration by the state. Unfortunately, DEQ has not demonstrated that the revision is based on a sound scientific rationale and protective of the designated aquatic life use as required by 40 C.F.R. § 131.11(a)(1). Pursuant to 40 C.F.R. § 131.21(e), with this disapproval, North Dakota's previous chronic ALC for mercury remains in effect for all CWA purposes. In addition, EPA is determining that revisions to NDAC § 33.1-16-02.1-11 relating to methods for reporting a spill or discharge of wastes to DEQ are not WQS. The enclosure describes EPA's rationale and identifies changes needed to ensure compliance with the requirements of the CWA and EPA's regulation.

Endangered Species Act Requirements

In addition to EPA's review pursuant to Section 303(c) of the CWA, Section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies, in consultation with the U.S. Fish and Wildlife Service (USFWS), to ensure their actions are not likely to jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of designated critical habitat of such species. EPA's disapproval of NDAC § 33.1-16-02.1-09 is not considered an "action" under Section 7(a)(2) of the ESA as defined at 50 C.F.R. § 402.02. As such, EPA's disapproval is not subject to Section 7(a)(2) consultation requirements given EPA's action is not authorizing, funding, or carrying out any activity or program. Even if EPA's disapproval of NDAC § 33.1-16-02.1-09 were to be considered an "action" subject to Section 7(a)(2) ESA consultation obligations, EPA's disapproval will not result in any change to the existing WQS under the CWA. Therefore, EPA's action will have NO EFFECT on listed species or their designated critical habitat. EPA has no ESA consultation obligation for today's action.

Indian Country

EPA's disapproval of North Dakota's WQS does not extend to Indian country as defined in 18 U.S.C. § 1151. Indian country in North Dakota generally includes (1) lands within the exterior boundaries of the following Indian reservations located within North Dakota: the Fort Berthold Indian Reservation, the Spirit Lake Reservation, the Standing Rock Sioux Reservation, and the Turtle Mountain Reservation; (2) any land held in trust by the United States for an Indian tribe (including but not limited to the Sisseton-Wahpeton Oyate Tribe); and (3) any other areas that are "Indian country" within the meaning of 18 U.S.C. Section 1151. EPA, or eligible Indian tribes, as appropriate, retain responsibilities under CWA Section 303 in Indian country. Today's action is not intended as an action to approve or disapprove WQS for waters within Indian country.

[2] See letter from Judy Bloom, Manager, Clean Water Branch, EPA Region 8 to David Glatt, Director, North Dakota DEQ, dated November 30, 2021.

Conclusion

We look forward to working with the DEQ on the changes needed to resolve today's disapproval action. If you have any questions, please contact Holly Wirick on my staff at (303) 312-6238 or Andrew Todd at (303) 312-7821.

Sincerely,

JUDY BLOOM

Digitally signed by JUDY BLOOM
Date: 2022.07.15 10:31:19 -06'00'

Judy Bloom, Manager
Clean Water Branch

Enclosure

cc: Mr. Karl Rockeman, Director, Division of Water Quality
North Dakota Department of Environmental Quality

Mr. Peter Wax, Division of Water Quality
North Dakota Department of Environmental Quality

Rationale for EPA's Disapproval of North Dakota's Revised Chronic Aquatic Life Criterion for Mercury

Water quality standards (WQS) include: (1) designated uses; (2) water quality criteria that support the designated uses; and (3) antidegradation requirements. 40 C.F.R. Part 131. At issue in this action are water quality criteria for the protection of aquatic life.

1. Clean Water Act and 40 C.F.R. Part 131 Requirements Relevant to Water Quality Criteria

CWA Section 101(a)(2) establishes as a national goal the achievement of water quality that provides for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water. CWA Section 304(a)(1) requires EPA to develop and publish and, from time to time, revise national recommended criteria for protection of aquatic life and human health that accurately reflect the latest scientific knowledge.

EPA's WQS regulation at 40 C.F.R. Part 131 interprets and implements CWA Sections 101(a)(2) and 303(c). 40 C.F.R. § 131.11(a)(1) requires that water quality criteria adopted by states and authorized tribes "be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use." For waters with multiple use designations, the criteria must support the most sensitive use. Designated uses are those uses specified in WQS for each water body or segment whether or not they are being attained (40 C.F.R. § 131.3(f)). Designated uses establish the environmental objectives for each water body (e.g., aquatic life, recreation, drinking water, agriculture, etc.).

2. EPA's Test for Evaluating Whether a Provision is a New or Revised WQS Subject to CWA Section 303(c) Action

EPA considers four questions (described below) when evaluating whether a particular provision is a new or revised WQS. If the answer to all four questions is "yes" then the provision would likely constitute a new or revised WQS that EPA has the authority and duty to approve or disapprove under CWA Section 303(c)(3).[3]

1. Is it a legally binding provision adopted or established pursuant to state or tribal law?
2. Does the provision address designated uses, water quality criteria (narrative or numeric) to protect designated uses, and/or antidegradation requirements for waters of the United States?
3. Does the provision express or establish the desired condition (e.g., uses, criteria) or instream level of protection (e.g., antidegradation requirements) for waters of the United States immediately or mandate how it will be expressed or established for such waters in the future?
4. Does the provision establish a new WQS or revise an existing WQS?

3. EPA's Recommended Chronic Aquatic Life Criterion for Mercury

EPA last published CWA Section 304(a)(1) national recommended aquatic life criteria (ALC) for mercury in 1995. The 1995 recommended freshwater chronic ALC for mercury is 0.77 µg/L

[3] *What is a New or Revised Water Quality Standard under 303(c)(3)? Frequently Asked Questions*, EPA No. 820F12017 (Oct. 2012). Available at https://www.epa.gov/sites/production/files/2014-11/documents/cwa303faq.pdf

(dissolved).[4] This dissolved[5] concentration was calculated by multiplying the 1995 total recoverable recommendation (0.9081 µg/L)[6] by the total to dissolved conversion factor for mercury of 0.85.[7] In other words, the dissolved concentration is a portion of the total recoverable concentration but the values are based on the same underlying toxicity dataset and therefore are equivalent in terms of the level of protection they provide. For certain metals, the dissolved concentration better represents the fraction that is bioavailable to fish (e.g., a primary mechanism for water column toxicity is adsorption at the gill surface which requires the dissolved form).[8] Importantly, in 1995, EPA noted that the "concentration of 0.9081 µg/L might not adequately protect such important fishes as the rainbow trout, coho salmon, and bluegill," some of which occur in North Dakota waters.[9] of exposure to aquatic life and therefore the primary toxicological basis for effects (discussed in more detail below).

4. North Dakota's Revised Chronic Aquatic Life Criterion for Mercury

North Dakota's prior chronic ALC for mercury was 0.012 µg/L (total recoverable), which was based on EPA's CWA Section 304(a)(1) recommendation from 1986.[10] During its most recent triennial review, North Dakota adopted a revised chronic ALC of 0.88 µg/L (total recoverable). The state indicated that it based this value on EPA's 1995 national recommended freshwater chronic ALC for mercury and that it had converted EPA's dissolved concentration value to a total recoverable value.[11]

EPA reviewed North Dakota's revised chronic ALC using the 4-part test described above and determined that it constitutes a revised WQS subject to EPA action pursuant to CWA section 303(c). This regulatory amendment constitutes a revised WQS because it is a legally binding provision adopted pursuant to state law, addresses water quality criteria (numeric criterion for mercury), expresses the desired condition for North Dakota's waters, and revises North Dakota's previously approved WQS.

5. EPA Analysis and Rationale for Disapproval

40 C.F.R. § 131.11(a)(1) requires that water quality criteria adopted by states and authorized tribes "be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use." For waters with multiple use designations, the criteria must support the most sensitive use. For the reasons discussed below, EPA has concluded that North Dakota's revised chronic ALC for mercury is not supported by a sound scientific rationale and does not protect the designated use.

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[4] EPA *National Recommended Water Quality Criteria – Aquatic Life Criteria Table* at www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table

[5] The term "dissolved" means the water sample was filtered, whereas "total recoverable" means the water sample was not filtered and includes particulates.

[6] *EPA 1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water* at www.epa.gov/sites/default/files/2019-03/documents/1995-updates-wqc-protection-al.pdf (p. J-1 to J-7).

[7] See Appendix A at www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table.

[8] October 1, 1993 Memorandum from Martha G. Prothro, Acting Assistant Administrator for Water, to Water Management Division Directors, Regions I-X on Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria. Available at www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table.

[9] *EPA 1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water* at www.epa.gov/sites/default/files/2019-03/documents/1995-updates-wqc-protection-al.pdf (p. J-2 and J-6).

[10] EPA's Quality Criteria for Water 1986 ("Gold Book"). See www.epa.gov/sites/default/files/2018-10/documents/quality-criteria-water-1986.pdf.

[11] EPA notes that the revised chronic mercury criterion DEQ adopted is not identical to EPA's 1995 national recommended 304(a) chronic criterion. This is because DEQ used a conversion factor of 0.875 instead of EPA's recommended conversion factor of 0.85 to convert from total recoverable to dissolved.

As stated above, when recommending the chronic ALC for mercury in 1995, EPA noted that it may not be protective of rainbow trout, coho salmon and bluegill.[12] According to North Dakota Game and Fish, rainbow trout and bluegill are among the common species of fish in North Dakota.[13]

States are required to adopt criteria that are based on "sound scientific rationale" and "scientifically defensible methods" (40 C.F.R. §§ 131.11(a)(1) and (b)(1)(iii)). Although EPA's national criteria recommendations exist to facilitate the adoption of protective criteria by the states and should be considered during that process, states are not mandated to adopt EPA's recommendations in whole or in part and must make appropriate decisions based on sound science, including adopting criteria based on appropriate local information and data and other scientifically defensible methods. Ultimately, the state bears the burden of demonstrating that the new or revised WQS meet the requirements of the CWA.[14]

DEQ cited EPA's 1995 national recommended freshwater chronic ALC for mercury as the basis for its criterion, but the state did not submit any supporting information to demonstrate that its adoption of the CWA Section 304(a)(1) recommended chronic mercury ALC will protect rainbow trout and bluegill, which are part of the applicable aquatic life designated use[15] in North Dakota.

Biological Opinions were issued by the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) in 2014 and 2015, respectively, related to EPA's approval of Idaho's criteria for mercury. These Biological Opinions concluded that EPA's approval of Idaho's chronic criterion for mercury of 0.012 µg/L (total recoverable) would jeopardize certain fish species in Idaho, including white sturgeon, which may have a similar risk profile to endangered pallid sturgeon in North Dakota. The Biological Opinions reflect the fact that methylmercury, a form of mercury, is a highly neurotoxic form of mercury that readily crosses biological membranes and is taken up primarily through the diet of aquatic organisms (accounting for more than 90% of the total amount of mercury accumulated by trophic level 4 fish, including walleye).[16] The NMFS Biological Opinion states that mercury is hazardous to fish because of its strong tendency to bioaccumulate and because methylmercury is a potent neurotoxin that causes both neurological damage which leads to behavioral effects (leading to reduced growth) as well as reproductive effects.[17] The NMFS Biological Opinion also includes an extensive analysis of the science at the time and concluded that a chronic criterion of 0.3 mg/kg (wet weight) in fish tissue and a corresponding water column concentration of 0.002 µg/L (total recoverable) would be protective of threatened and endangered species in Idaho (which included salmonids and sturgeon, but did not include amphibians).[18]

EPA conveyed information about the conclusions drawn in the Idaho Biological Opinions to North Dakota DEQ during a phone call on January 8, 2020, to discuss DEQ's next triennial review and its

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[12] EPA *1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water*. See www.epa.gov/sites/default/files/2019-03/documents/1995-updates-wqc-protection-al.pdf (p. J-2 and J-6).

[13] North Dakota Game and Fish *Common and Species of Conservation Priority Fish in North Dakota*. See gf.nd.gov/wildlife/id/fish.

[14] *See, e.g., El Dorado Chem. Co. v. US EPA*, 763 F.3d 950, 959 (8th Cir. 2014).

[15] NDAC 33.1-16-02.1-04. 12(b) defines the designated use as "Fish and aquatic biota. Waters suitable for the propagation and support of fish and other aquatic biota and waters that will not adversely affect wildlife in the area."

[16] National Marine Fisheries Service Biological Opinion on the effects of approving the Idaho WQS for toxic substances issued May 7, 2014 (NMFS consultation No. 2000-1484 (p. 144)).

[17] National Marine Fisheries Service Biological Opinion on the effects of approving the Idaho WQS for toxic substances issued May 7, 2014 (NMFS consultation No. 2000-1484 (p. 144)).

[18] Id. See Reasonable and Prudent Measure (p. 284).

plans to adopt the 1995 CWA Section 304(a)(1) freshwater chronic ALC for mercury. EPA Office of Water staff informed DEQ they were concerned that the 1995 CWA Section 304(a)(1) freshwater chronic ALC for mercury does not protect aquatic species in North Dakota and cautioned the state against adopting the criterion. Instead, EPA recommended that the state retain its current chronic mercury criterion of 0.012 µg/L until EPA updates its CWA Section 304(a)(1) national recommendations for mercury. Following the phone call, EPA emailed the NMFS Biological Opinion to DEQ on January 9, 2020.[19] On June 8, 2021, DEQ adopted a revised chronic ALC of 0.88 µg/L (total recoverable) for mercury.

Finally, current scientific information shows that mercury exposure from dietary sources is the primary route of exposure to aquatic life and therefore the primary toxicological basis for effects. Toxicity due to dietary exposure will be the basis for future CWA Section 304(a)(1) mercury criteria updates and is the basis for EPA's current mercury criterion development work in Idaho discussed below.

6. EPA Action

For the reasons discussed above, EPA disapproves NDAC § 33.1-16-02.1-09 because the state has not demonstrated that it is based on sound scientific rationale and protective of the designated aquatic life use as required by 40 C.F.R. § 131.11(a)(1).

7. Remedy to Address the Disapproval

Where EPA disapproves a state's new or revised WQS, CWA Section 303(c)(3) and 40 C.F.R. § 131.21(a)(2) require EPA to specify the changes necessary to meet the requirements of the Act and the implementing regulation. Pursuant to 40 C.F.R. § 131.21(e), with this disapproval, North Dakota's previous chronic water quality criterion for mercury of 0.012 µg/L remains in effect for all CWA purposes. To resolve the disapproval, North Dakota must either:

1. provide adequate scientific support for why the criterion it adopted meets CWA requirements (i.e., justify how the criterion protects sensitive species present in the state, such as pallid sturgeon, rainbow trout and bluegill), or
2. adopt a new chronic criterion for mercury that protects aquatic life in the state from long term exposures via relevant exposure pathways (i.e., including the dietary exposure pathway).

EPA is currently evaluating data on mercury toxicity from dietary exposures for the purpose of developing a protective mercury criterion for the State of Idaho and anticipates the Idaho work to inform a future CWA Section 304(a)(1) mercury criteria update. EPA has already shared some information about EPA's evaluation of the latest science on mercury toxicity with North Dakota, including a summary of the toxicity studies that preliminarily meet EPA's data quality guidelines for criteria development. Although EPA's evaluation of the latest science is ongoing, the preliminary information that EPA shared with North Dakota corroborates the conclusions in the NMFS Biological Opinion for Idaho. These conclusions are that to protect aquatic species that occur in North Dakota from mercury exposure, (1) the mercury criterion must account for the dietary exposure pathway, and (2) water column concentrations of mercury potentially should be at least two orders of magnitude lower than the criterion DEQ adopted (e.g., 0.002 µg/L (total recoverable)). EPA encourages DEQ to consider the information that EPA has previously shared as it considers how to address this disapproval.

[19] See January 9, 2020 email from Holiday Wirick, EPA Region 8, to Peter Wax, ND DEQ.

CWA Section 303(c)(3) and 40 C.F.R. § 131.22(a) provide North Dakota with 90 days to address this disapproval before EPA is obligated to promptly propose a revised chronic mercury criterion for North Dakota that meets CWA requirements. EPA recognizes the challenges North Dakota will have in meeting that 90-day deadline, especially when any revisions and/or new supporting documentation will be subject to public participation requirements at 40 C.F.R. § 131.20(b). EPA remains available to provide technical assistance to DEQ as it determines a path forward.

Contrary to the 90 days that CWA Section 303(c)(3) affords states to resolve a WQS disapproval, CWA Section 303(c)(4) does not contain a specific timeline for EPA to publish proposed regulations if a state does not remedy an EPA disapproval and says only that such action must be "prompt." Given the complex scientific and technical challenges inherent in developing criteria that will protect the waters of a particular state, what constitutes "prompt" action must necessarily be determined on a case-by-case basis. EPA has made significant progress in assembling and evaluating the latest science that would support derivation of a protective mercury criterion for North Dakota. If North Dakota is unable to address the disapproval within 90 days, EPA expects that an additional 24 months will be needed to complete the data evaluation and criteria derivation, document the complex technical analysis, and assemble the record necessary to support a federal rulemaking to establish a revised mercury criterion for North Dakota. Consistent with the CWA's goals and structure of cooperative federalism, EPA prefers that DEQ retain the lead role afforded to it by the CWA in establishing WQS for its waters. If DEQ is unable to address this disapproval within 90 days and EPA moves forward towards a federal rulemaking, EPA will halt that process if DEQ adopts protective criteria that EPA approves as consistent with CWA requirements.

8. Provisions that EPA Did Not Act on

In a previous EPA action letter dated November 30, 2021, EPA did not act on the update to language on methods for reporting a spill or discharge of wastes to DEQ at NDAC § 33.1-16-02.1-11. EPA determined that this provision is not a WQS requiring EPA review and approval under CWA Section 303(c) because it does not involve a revision to criteria, designated uses or antidegradation.[20]

[20] See *What is a New or Revised Water Quality Standard Under CWA 303(c)(3) Frequently Asked Questions* at www.epa.gov/sites/production/files/2014-11/documents/cwa303faq.pdf.